

THE MODIFYING EFFECT OF SOCIOECONOMIC STATUS ON THE ASSOCIATION BETWEEN HOSPITALIZATIONS FOR ACUTE MYOCARDIAL INFARCTION AND AIR POLLUTION IN SANTIAGO, CHILE

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Background and Aims: Many studies have reported the association between acute myocardial infarction (AMI) and air pollution, but has been little explored the modifying effect of socioeconomic status (SES) on Chilean morbidity data. Thus, the objective study was to examine whether the association between hospitalizations for acute myocardial infarction and air pollution (PM10, PM2.5 and O3) is modified by SES.

Methods: Daily counts of hospitalizations for acute myocardial infarction (ICD-10: I21-I22) from Santiago, Chile (years 2002-2006) were considered. Patients were grouped into the following age ranges: All, 18-64, 65-74 and ≥ 75 years old. To study the association between AMI and air pollution (PM10, PM2.5 and O3), a time-stratified case-crossover approach was applied, controlling for temperature and dew point, using natural splines. Separate analyses by SES were performed by income groups, according to individual health insurance: private (higher-SES), and public (low-SES) and within this, by four sub-groups: no income; minimum-wage workers, low-income, and medium income. Lags 0-7 and moving averages were evaluated.

Results: 9,665 AIM records with 8,446 by SES were available (mean 64 years old). Means for PM10, PM2.5 and O3 were 69.9 $\mu\text{g}/\text{m}^3$, 32.2 $\mu\text{g}/\text{m}^3$, and 33.2 ppb, respectively. A significant association ($p < 0.05$) was observed in adults 18-64 years old only (hospitalizations increased by 3.1%(0.48-5.79%), per 10 $\mu\text{g}/\text{m}^3$ PM2.5, lag2). According to analysis by SES was observed an association for adults 18-64 years old belonging to low-income (hospitalizations increased by 6.4%(0.45-12.7%) PM2.5, lag 0, with increased risk for lag2), medium-income groups (15.8%(1-32.8%), per 10 ppb of O3, with increased risk for lag4), and for higher-SES people (6.28%(0.43-12.5%), PM2.5, lag2; and besides for people 65-74 years old at 28%(6.1-55.4%), O3, lag0). The figures for PM10 were qualitatively similar for PM2.5

Conclusions: This analysis suggests that socioeconomic status modifies the association between AIM hospitalizations and air pollution in Santiago, Chile.